ELEC 442/516 Analog Integrated Circuits

Spring 2022

Contact Information

Instructor: Yingyan Lin
Office: Duncan Hall 2040
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Office Hours: Fri. 4PM - 5PM / Fully Online

Lecture Time / Location

4:00PM - 5:15PM MW / DCH 1075

Course Description

There has been growing interest in analog computing in both academia and industry in the era of artificial intelligence. ELEC 442/516 Analog Integrated Circuits provides a comprehensive introduction to various aspects of modern analog integrated circuits. Students will learn how to 1) analyze, simulate and design a complementary metal oxide semiconductor (CMOS) analog integrated circuit, 2) analyze and simulate elementary transistor stages, current mirrors, supply- and temperature-independent bias and reference circuits, and 3) explore performance evaluation using computer-aided design tools.

Required Texts and Materials

Textbooks are not required. Below is a list of optional/recommended textbooks:

- P. R. Gray, P. Hurst, S. Lewis, and R. G. Meyer, **Analysis and Design of Analog Integrated Circuits**, 5th ed., New York, NY: Wiley, 2009
- Behzad Razavi, **Design of Analog CMOS Integrated Circuits**, Tata McGraw-Hill, 2002

Exams

- Closed book and one page of notes will be allowed.
- Let the instructor know at least 15 days in advance if students need to reschedule an exam.

Homework

- Most of the homework assignments will be related to the topics covered in the class.
- One late homework will be accepted.
- Homework will be graded on a scale of 10 with 10 points awarded for mostly correct, 5 points for partially correct solutions, and 0 points for little or no effort.

Grade Policies

Course grade will be based on homework (30%), one midterm exam (30%), and one final exam (40%).

Absence Policies

Students are expected to attend all scheduled course activities. Students should inform the instructor in advance of absences and seek a reasonable make up plan for the work missed.

Rice Honor Code

In this course, all students will be held to the standards of the Rice Honor Code, a code that you pledged to honor when you matriculated at this institution. If you are unfamiliar with the details of this code and how it is administered, you should consult the Honor System Handbook at http://honor.rice.edu/honor-system-handbook/. This handbook outlines the University's expectations for the integrity of your academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process.

Disability Resource Center

If you have a documented disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with the Disability Resource Center (Allen Center, Room 111 / adarice@rice.edu / x5841) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs.

Syllabus Change Policy

This syllabus is only a guide for the course and is subject to change with advanced notice.